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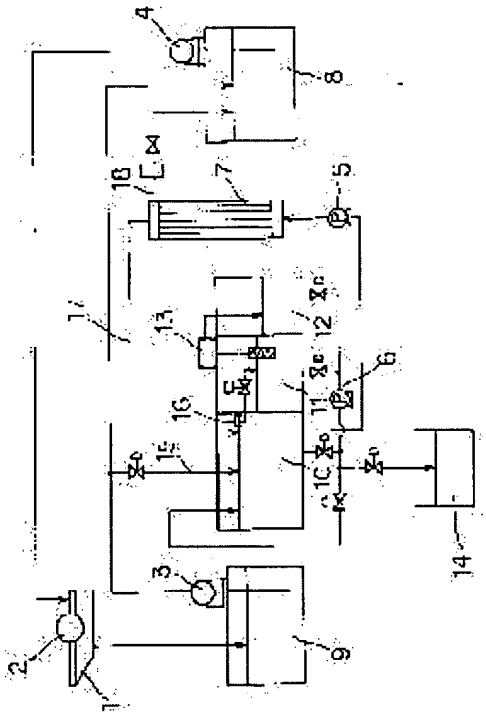
(54) APPARATUS FOR CLEANING DAMPENING WATER

(57)Abstract:
PROBLEM TO BE SOLVED: To eliminate the replacement of a filter required by clogging by suspended solids in dampening water and to prevent the accumulation of ink in the dampening water.
SOLUTION: In an apparatus for cleaning dampening water, the dampening water which is returned from a relay tank 9 into which the dampening water is introduced from a dampening water boat 1 to the boat 1 through a dampening water cooling/circulating tank 8 is cleaned. Part of the dampening water flowing from the tank 9 to the tank 8 is divided by a branch pipe. A process tank 10 in which the dampening water divided by the branch pipe 15 is allowed to stand, a concentration tank 11 which receives liquid of an upper layer from the tank 10, separates suspending ink, and returns the residual liquid to the tank 10, and a filter device 7 which filters the liquid in the tank 10 and introduces the liquid into the tank 8 are provided. The filter device 7 uses a cross-flow type ceramic ultrafiltration membrane.



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CLAIMS

[Claim(s)]
[Claim 1] The dampening-water purge characterized by to have formed the branch pipe which pours some dampening water which flows from said junction tank to a dampening water cooling circulation tank in the dampening-water purge which purifies the dampening water returned to said dampening water brake shoe through a dampening water cooling circulation tank from the junction tank into which the dampening water which carried out overflow of the dampening water brake shoe is made to flow, and to prepare the purge which purifies the dampening water which flows this branch pipe.
[Claim 2] Said purge is the dampening-water purge according to claim 1 characterized by to have the concentration tank which separates the processing tank which holds said branched dampening water, and the ink which received the upper liquid and floated from the inside of this processing tank, and returns residual liquid to said processing tank, and the filter which filters the liquid of said processing tank and make flow into said dampening-water cooling circulation tank, and to constitute the concentration liquid from said processing tank and said concentration tank possible [discharge] outside.
[Claim 3] The dampening water purge according to claim 2 characterized by using the ultrafiltration membrane of a cross-flow method for said filter by the product made from the ceramics.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to the dampening water purge for purifying the dampening water for printing machines.
[0002]
[Description of the Prior Art] It is used in the offset press, and wets and equipment is shown in drawing 2 . In drawing 2 , in 1, a printing cylinder and 22 show a ****** roller and, as for a dampening water brake shoe and 2, 23 shows the chromium roller, as for Laura Mizumoto and 21. 26 is an ink arrival ** roller and 27 is an ink round trip roller. The dampening water in the dampening water brake shoe 1 is pumped up by Laura Mizumoto 2, adjusts amount of water with the chromium roller 23, is moved to the ****** roller 22, and is moved from the ****** roller 22 to the printing plate of a printing cylinder 21. On the other hand, ink is moved from the ink round trip roller 27 to the printing plate of a printing cylinder 21 through the ink arrival ** roller 26.
[0003] Thus, since it wets and the ****** roller 22 of equipment is supplied directly in contact with the printing plate of a printing cylinder 21, suspended matter, such as ink and paper powder of a printing plate, and powder, adheres to the ****** roller 22, and the whole dampening water cooling circulation system is covered with the dampening water used for the offset press, and it causes printing defects, such as a hickey.
[0004] Thus, in order to avoid the problem of the printing defect produced when a dampening water cooling circulation system is covered with suspended matter (SS) etc., a dampening water purge is prepared in a dampening water cooling circulation system. As a dampening water purge, conventionally, the laminating nonwoven fabric filter or the cartridge-type nonwoven fabric filter was placed into the dampening water circulation cooling system, and the suspended matter was removed. The configuration of the conventional dampening water purge is shown in drawing 3 . In drawing 3 , in 3 and 4, a dampening water cooling circulation tank and 9 show a junction tank, and, as for a pump and 8, 30 shows the nonwoven fabric filter (a laminating or cartridge-type).
[0005] In the dampening water purge of drawing 3 , water is supplied to dampening water by the dampening water brake shoe 1 with a pump 4 from the dampening water cooling circulation tank 8, and the dampening water which overflowed at least the water of the dampening water brake shoe 1 from accommodation tubing is brought together in the junction tank 9, and is returned to the dampening water cooling circulation tank 8 with a pump 3 from the junction tank 9. The laminating nonwoven fabric filter or the cartridge-type nonwoven fabric filter 30 is formed in this middle, and the suspended matter in dampening water (SS) is removed now.
[0006] However, as described above, since the ink of that a nonwoven fabric filter must be exchanged in one - two months for the blinding by suspended matter and the emulsion condition emulsified in dampening water was unremovable in the conventional dampening water purge using the nonwoven fabric filter 30, ink was gradually accumulated into dampening water, and there were problems, like the need of replacing the whole dampening water arises.
[0007]
[Problem(s) to be Solved by the Invention] This invention does not need the filter exchange by the blinding of the suspended matter in dampening water, and makes it the technical problem to offer the dampening water purge which enabled prevention of ink are recording into dampening water again.
[0008]
[Means for Solving the Problem] This invention forms the branch pipe which pours some dampening water which flows from said junction tank to a dampening-water cooling circulation tank, and offers the dampening-

water purge which prepared the purge which purifies the dampening water which flows this branch pipe in the dampening-water purge which purifies the dampening water returned to said dampening-water brake shoe through a dampening-water cooling circulation tank from the junction tank into which the dampening water which carried out overflow of the dampening-water brake shoe is made to flow in order to solve said technical problem.

[0009] Thus, since according to the dampening water purge of constituted this invention it branches to a purge, suspended matter and ink are removed there and some dampening water which flows from a junction tank to a dampening water cooling circulation tank is returned to a dampening water brake shoe through a dampening water cooling circulation tank, it can prevent accumulating ink into dampening water. Thus, by using it, always purifying dampening water, since actuation of replacing dampening water for ink are recording is not needed, the amount of the dampening water used can be saved greatly.

[0010] The processing tank which holds said branched dampening water for said purge in the dampening water purge of above mentioned this invention, The concentration tank which separates the ink which received the upper liquid and floated from the inside of this processing tank, and returns residual liquid to said processing tank, It shall have the filter which filters the liquid of said processing tank and is made to flow into said dampening water cooling circulation tank, and the concentration liquid from said processing tank and said concentration tank should be constituted possible [discharge] outside.

[0011] Thus, by adopting the constituted purge, some dampening water which flows from a junction tank to a dampening water cooling circulation tank is held by the processing tank, the suspended matter containing the ink contained in dampening water is moved to a concentration tank as upper liquid, ink is separated there, and residual liquid is returned to a processing tank. Moreover, the liquid of a processing tank is filtered with a filter, flows into a dampening water cooling circulation tank, and is used as dampening water. It prevents discharging concentration liquid outside and accumulating ink etc. into dampening water from a processing tank and a concentration tank, on the other hand.

[0012] As a filter used in the dampening water purge of this invention explained above, the thing using the ultrafiltration membrane of a cross-flow method is desirable at the product made from the ceramics. While not starting blinding in a film surface by using the ultrafiltration membrane of a cross-flow method by such product made from the ceramics and stabilizing a throughput, a filter life is long, can be used semipermanently, is exchanged, and becomes unnecessary. Moreover, since filtration capacity is recoverable by washing the film even after suspending prolonged use, daily maintenance control becomes unnecessary and it does not take time and effort.

[0013]

[Embodiment of the Invention] Hereafter, the dampening water purge by this invention is concretely explained based on one gestalt of operation shown in drawing 1 . In addition, in drawing 1 , the same sign is given to the part of the same configuration as the conventional equipment shown in drawing 3 , and the explanation which overlaps about them is omitted.

[0014] In drawing 1 , in 10, a processing tank and 11 show a concentration tank and 12 shows the ink tank. The branch pipe 15 which pours some dampening water which flows from the junction tank 9 to the dampening water cooling circulation tank 8 is arranged by the processing tank 10. There is overflow opening 16 in a processing tank 10, and overflow of the liquid of the upper layer in a processing tank 10 is carried out to the concentration tank 11.

[0015] 13 is an ink catcher and serves to suck up the ink which floats in the upper part within the concentration tank 11, and to send to the ink tank 12.

[0016] 7 is an ultrafiltration membrane cartridge, the filtration membrane made from the ceramics is used for this ultrafiltration membrane cartridge 7, processing liquid flows to those filtration membrane and parallel, and the solute which cannot pass a filtration membrane, and suspended matter have composition which passes the ultrafiltration membrane cartridge 7 in the form condensed as a circulation undiluted solution, and is returned to a processing tank 10 with a return pipe 17. 18 is piping which pours the dampening water filtered by the ultrafiltration membrane cartridge 7 to the dampening water cooling circulation tank 8.

[0017] 14 shows a discharge tank and the discharge tank 14 receives the concentration liquid discharged from a processing tank 10, the concentration tank 11, and the ink tank 12. In drawing, 5 is a pump and is for sending dampening water to the ultrafiltration membrane cartridge 7 from a processing tank 10. 6 is an eductor pump and is for sending the effluent liquor of processing tank 10, concentration tank 11, and ink tank 12 each to the

discharge tank 14.

[0018] Actuation of the dampening water purge with the above configuration of drawing 1 is explained below. At least the water attached in the dampening water brake shoe 1 is overflowed from accommodation tubing, is returned to the junction tank 9, and is collected, and the dampening water in the dampening water brake shoe 1 of dampening water equipment is sent to a processing tank 10 and the dampening water cooling circulation tank 8 with a pump 3. In this case, water is supplied by the branch pipe 15 to a processing tank 10 about [that the suspended matter (SS) sent out from the dampening water brake shoe 1 with a pump 3 was mixed from the junction tank 9 / of the flow rate of dampening water] to 1/10.

[0019] Water is supplied to the dampening water in a processing tank 10 by the ultrafiltration membrane cartridge 7 with a pump 5 from the lower part of a processing tank 10. The suspended matter in dampening water (SS) passes a cartridge 7, without being filtered, and returns to a processing tank 10 through a return pipe 17. On the other hand, the water filtered by the cartridge 7 is sent to the dampening water cooling circulation tank 8 through piping 18. That is, dampening water flows to a filtration membrane and parallel in the ultrafiltration membrane cartridge 7 at high speed, and since the larger solute and larger suspended solid of a filtration membrane than a hole dimension flow a filtration membrane by the cross-flow method and cannot pass a filtration membrane, they remain as a circulation undiluted solution, are condensed, and return to a processing tank 10 with a return pipe 17. On the other hand, water, H liquid, etc. pass a filtration membrane and are sent to the dampening water cooling circulation tank 8 of a circulation system.

[0020] The circulation liquid which changed into the condition of having passed the ultrafiltration membrane cartridge 7 and having been condensed, and returned to the processing tank 10 through the return pipe 17 flows the upper liquid out of the overflow opening 16 into the concentration tank 11, in order to remove the ink contained in liquid, and the ink which floated. By the ultrafiltration membrane cartridge 7, since the ink which floated to dampening water will cause filtration membrane performance degradation that it is easy to adhere to a membranous wall side, it is necessary to remove it.

[0021] By carrying out standing of the liquid included in the concentration tank 11 for several minutes, the contained ink floats on the top face with time amount. This suspension ink is sucked up by the ink catcher 13 of a bellows type, only oil is discharged to the ink tank 12, and residue of the concentration tank 11 is returned to a processing tank 10. After a need time amount repeat deed and this process finish this concentration process, from a processing tank 10, that upper water is incorporated on the concentration tank 11, the ink which floats in that upper part is sucked up by the ink catcher 13, and delivery and residual liquid are newly returned to the ink tank 12 to a processing tank 10. The ink in the circulation liquid of dampening water is removed by repeating this process again.

[0022] In order for the dampening water in a processing tank 10 to become high concentration while repeating this purification process, and to reduce the filtration capacity of the ultrafiltration membrane in the ultrafiltration membrane cartridge 7, the discharge tank 14 is made to discharge automatically the concentration liquid which became high concentration by timer setup with an eductor pump 6. With the dampening water purge which performs the above actuation, good dampening water is always efficiently supplied to the dampening water brake shoe 1.

[0023] As mentioned above, although concretely explained based on the operation gestalt illustrating this invention, it cannot be overemphasized that various modification may be added to the concrete structure and a configuration within the limits of this invention which this invention is not limited to these operation gestalten, but is shown in a claim.

[0024] For example, although the segregate which is removing the suspended matter containing ink from the dampening water in the junction tank 9 from a processing tank 10, the concentration tank 11, and the ink tank 12 is used with the above-mentioned operation gestalt, as long as the suspended matter containing ink is removable from dampening water, you may adopt not only in the thing of this configuration.

[0025] Moreover, although the dampening water in a processing tank 10 is filtered and the ultrafiltration membrane cartridge using the filtration membrane made from the ceramics is adopted with the above-mentioned operation gestalt, as a filter, things other than this configuration may be adopted suitably.

[0026]

[Effect of the Invention] As explained above, this invention forms the branch pipe which pours some dampening water which flows from said junction tank to a dampening-water cooling circulation tank in the dampening-water purge which purifies the dampening water returned to said dampening-water brake shoe

through a dampening-water cooling circulation tank from the junction tank into which the dampening water which carried out overflow of the dampening-water brake shoe is made to flow, and the dampening-water purge which prepared the purge which purifies the dampening water which flows this branch pipe offers.

[0027] Since according to this dampening water purge of this invention some dampening water which flows from a junction tank to a dampening water cooling circulation tank branches to a purge, suspended matter and ink are removed by that purge and it is returned to a dampening water brake shoe through a dampening water cooling circulation tank, it can prevent accumulating ink into dampening water, and actuation of replacing dampening water for ink are recording is not needed, but the amount of the dampening water used can be saved greatly.

[0028] Moreover, the processing tank which holds the dampening water which branched in the dampening water purge of this invention as described above, The concentration tank which separates the ink which received the upper liquid and floated from the inside of this processing tank, and returns residual liquid to said processing tank, The filter which filters the liquid of said processing tank and is made to flow into said dampening water cooling circulation tank is prepared. In what was constituted possible [discharge] outside, the concentration liquid from said processing tank and said concentration tank Standing of some dampening water which flows from a junction tank to a dampening water cooling circulation tank is carried out to a processing tank. The suspended matter containing the ink contained in dampening water is moved to a concentration tank as upper liquid, ink is separated there, residual liquid is returned to a processing tank, concentration liquid is discharged outside from a processing tank and a concentration tank in this way, and it prevents accumulating ink etc. into dampening water.

[0029] moreover, in the dampening water purge of this invention, by the thing using the ultrafiltration membrane of a cross-flow method as a filter by the product made from the ceramics A filter life is long, while not starting blinding in a film surface and stabilizing a throughput. Since filtration capacity is recoverable by washing the film even after being able to use it semipermanently, exchanging, and becoming unnecessary and suspending prolonged use, daily maintenance control becomes unnecessary and it does not take time and effort.

[0030] In this way, according to this invention, the dampening water purge which does not need the filter exchange by the blinding of the suspended matter in dampening water, and can prevent ink are recording into dampening water again is offered.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] The explanatory view showing the flow in the dampening water purge by one gestalt of operation of this invention.
[Drawing 2] The explanatory view showing the array of the various rolls in the offset press.
[Drawing 3] The explanatory view showing the flow in the conventional dampening water purge.
[Description of Notations]
1 Dampening Water Brake Shoe
2 Laura Mizumoto
3 Pump
4 Pump
5 Pump
6 Eductor Pump
7 Ultrafiltration Membrane Cartridge
8 Dampening Water Cooling Circulation Tank
9 Junction Tank
10 Processing Tank
11 Concentration Tank
12 Ink Tank
13 Ink Catcher
14 Discharge Tank
15 Branch Pipe
16 Overflow Opening
17 Return Pipe
18 Piping
21 Printing Cylinder
22 ****** Roller
23 Chromium Roller
26 Ink Arrival ** Roller
27 Ink Round Trip Roller
30 Nonwoven Fabric Filter

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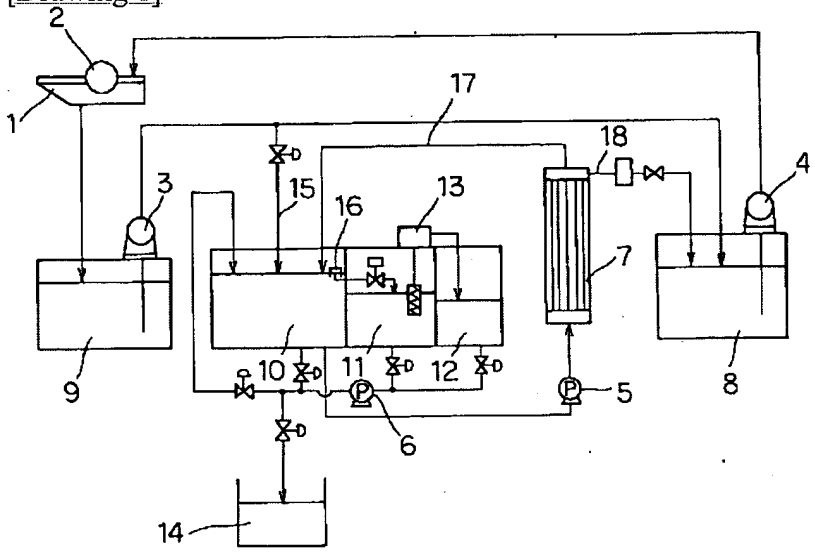
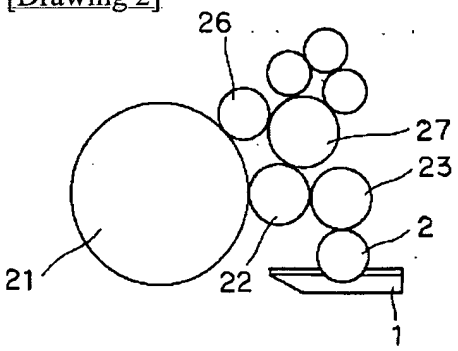
DRAWINGS

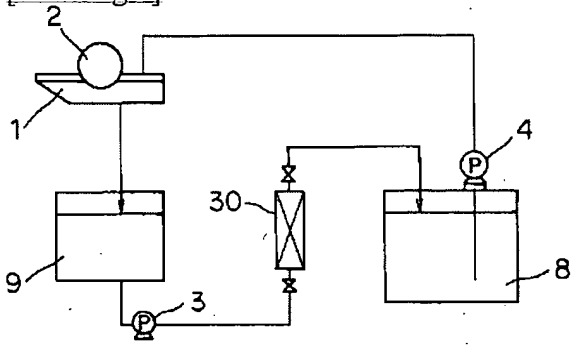
[Drawing 1]



[Drawing 2]



[Drawing 3]



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